Coronis Fusion 10MP

User Guide

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BARCO

Visibly yours

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1. WELCOME!

1.1 About the product

Overview

Thank you for choosing this Coronis Fusion 10MP!

Equipped with proprietary 'SmoothGray' technology for a meticulously rendered grayscale curve, the Coronis Fusion 10MP display makes subtle details and lesions more noticeable than ever before. Add to this exceptionally high brightness and contrast levels, truly dark blacks and perfect geometry and you begin to understand that supreme grayscale precision has a new meaning.

Thanks to the seamless 30-inch LCD screen, you can easily compare prior and current mammography images without the annoyance of a central bezel. Moreover, it allows you to review X-ray chest images or 40 full-resolution CT or MR images with superb diagnostic precision on a single screen.

The integrated I-Guard sensor makes Quality Assurance an easy job. Combined with the online MediCal QAWeb solution, I–Guard performs intervention-free DICOM calibrations, Quality Assurance tests and remote assessment of your display.

Use the instructions in this guide to install your Coronis Fusion 10MP display and discover all these interesting features yourself!

CAUTION: Read all the important safety information before installing and operating your Coronis Fusion 10MP. Please refer to the dedicated chapter in this user guide.

1.2 What's in the box

Overview

Your Coronis Fusion 10MP comes with:

- this Coronis Fusion 10MP user guide
- a system CD
- two DVI cables
- two DisplayPort cables
- a USB cable
- a set of AC power cords
- an external power supply

If you ordered a Barco display controller, it's also in the box together with its accessories. A dedicated user guide is available on the system CD.

Keep your original packaging. It is designed for this display and is the ideal protection during transport and storage.

2. PARTS, CONTROLS AND CONNECTORS

2.1 Display front view

Overview

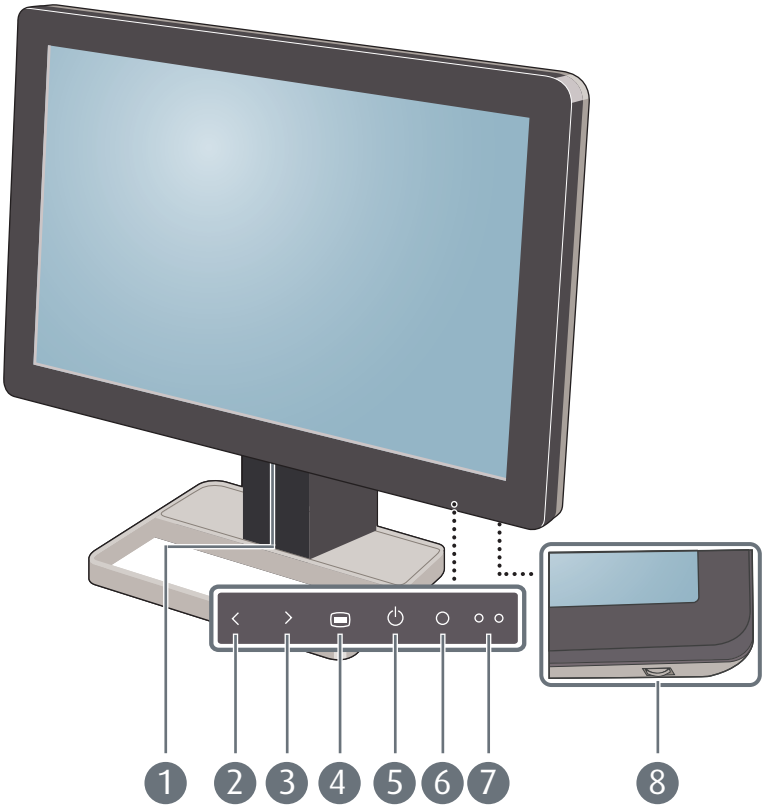


Image 2-1

1. USB downstream connectors
2. Left / Up key
3. Right / Down key
4. Menu / Enter key
5. Stand-by / Cancel key
6. Ambient light sensor
7. Power status indicator light
8. Control wheel

2.2 Display rear view

Overview

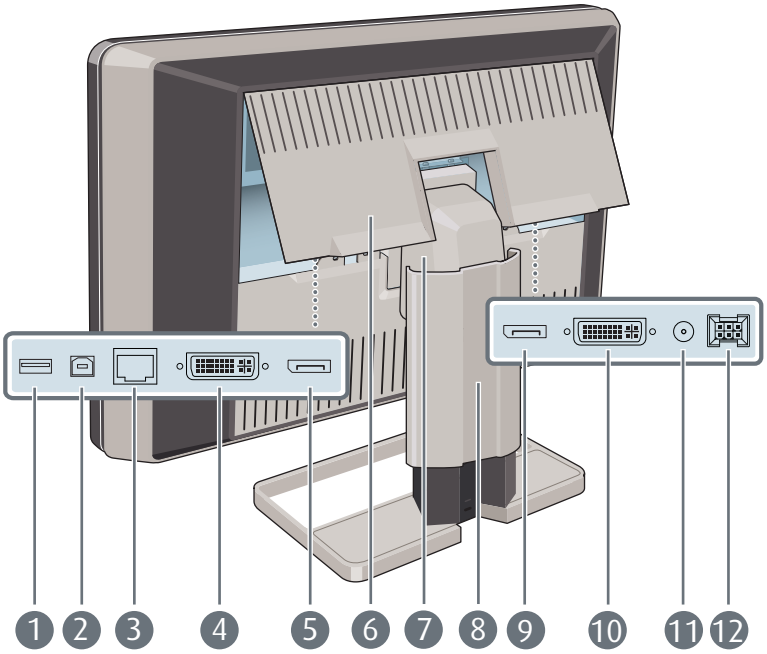


Image 2-2

1. USB downstream connector
2. USB upstream connector
3. Ethernet connector (see note below)
4. DVI 1 video input
5. DisplayPort 1 video input
6. Connector compartment cover
7. Neck cover
8. Display stand cover
9. DisplayPort 2 video input
10. DVI 2 video input
11. +5 Vdc, 0.5 A power output
12. +24 Vdc power input

The Ethernet connection is used for maintenance purposes and is not supported for user application.

3. DISPLAY INSTALLATION

Prior to installing your Coronis Fusion 10MP and connecting all necessary cables, make sure to have a suitable display controller physically installed in your computer. If you are using a Barco display controller, please consult the user guide delivered with it to do this.

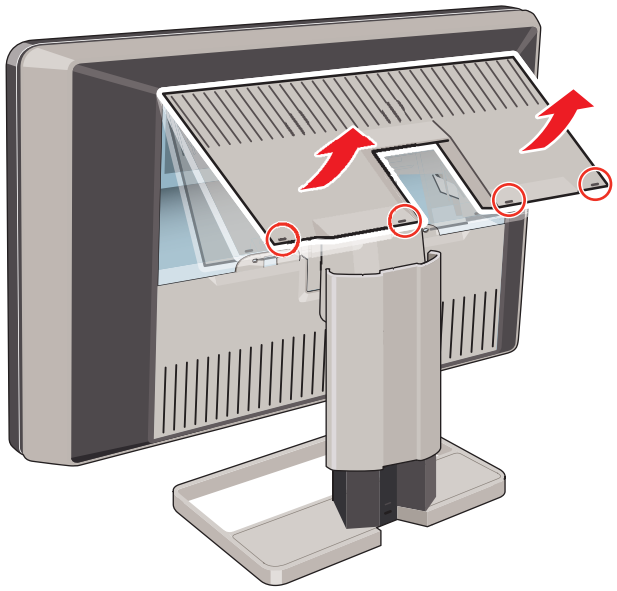
For a list of compatible display controllers, please refer to the latest version of the compatibility matrix available on myBarco.com (myBarco > My Support > Healthcare > Compatibility Matrices > Barco Systems Compatibility Matrices).

3.1 Removing the covers

To remove the connector compartment cover

The connector compartment cover should be removed to get access to the connectors. To remove the cover, proceed as follows:

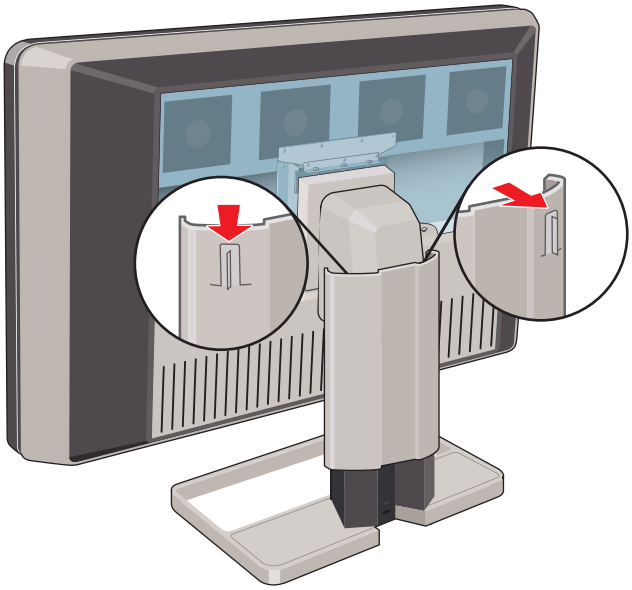
1. Gently lift the clips at one of the handles of the connector compartment cover to release that side of the cover.
2. Do the same at the other side of the cover.
3. Remove the cover.



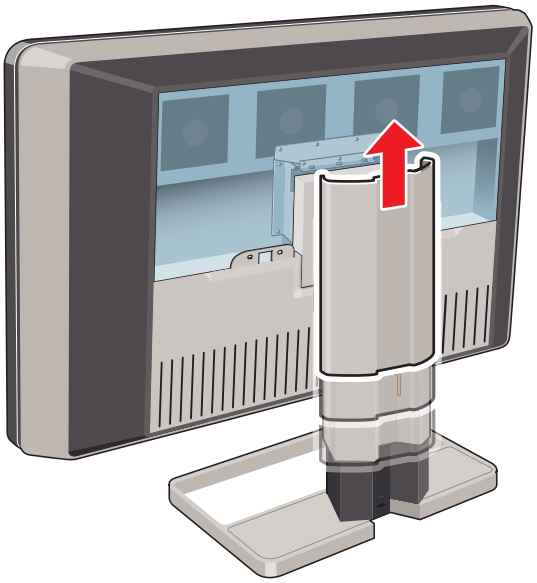
To remove the display stand cover

To get access to the cable routing channel, the display stand cover should be removed. This can be done as follows:

1. Gently press and hold the clips at the inside top of the cover.



2. Slide the cover upwards while holding the clips pressed.

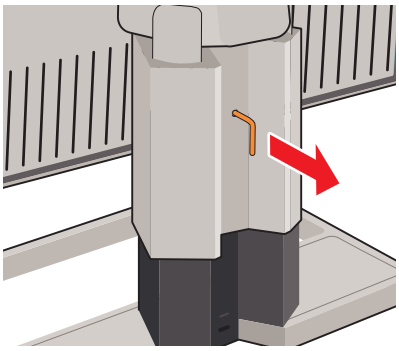


3.2 Unlocking the height mechanism

In the factory, the height-positioning system in the display stand is locked with a red hook to prevent damage during transportation. You'll have to remove this hook before adjusting your display height position.

To remove the hook:

1. Position the display with its rear side facing you.
2. While holding the display panel pushed down, pull out the red hook in the display stand.



3. Keep the clip in the dedicated hole in case the display needs to be shipped later.

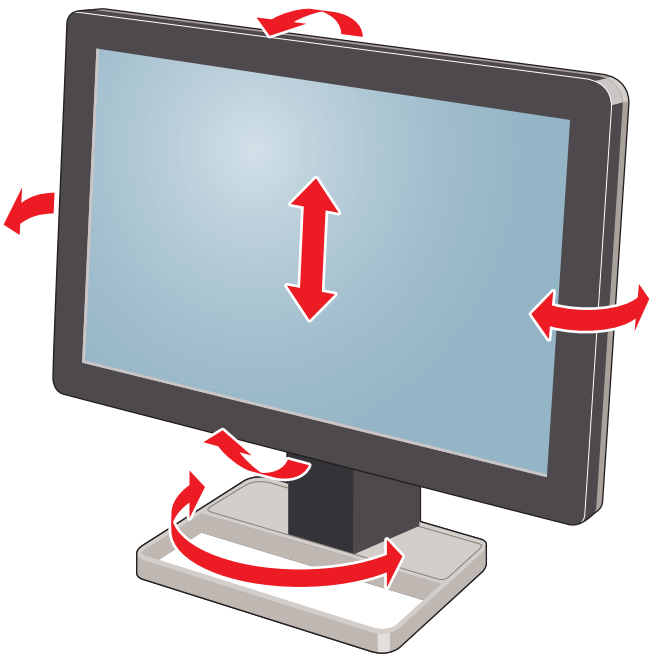
To retain the hook for possible future transportation, insert the short, red end of the hook back into the stand of your display.

3.3 Adjusting the display position

Now that the height-positioning system of your display is unlocked, you can adjust the display position.

To adjust the display position

1. Tilt, swivel, raise and lower the display as desired.



CAUTION: Do not try to pivot your display when attached to the stand. Trying to do so could cause serious damage to your display and its stand.

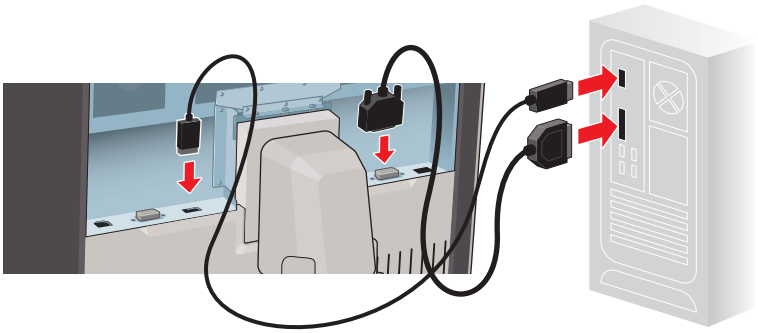
3.4 Connecting the signal cables

To get access to the connectors, remove the connector compartment cover. See "Removing the covers", page 7 .

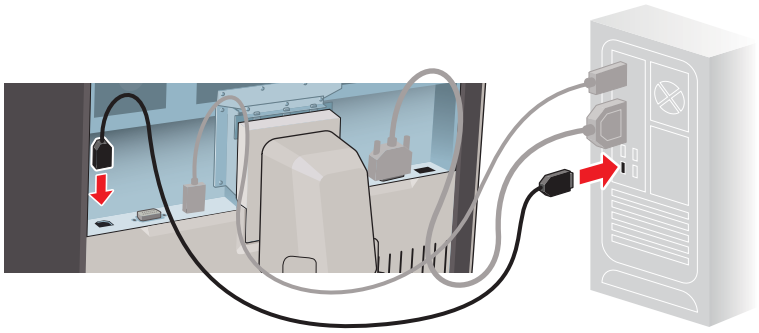
Each side of your display can have a different video input connected (one side can have DVI connected while the other side has DisplayPort connected). Both display sides can have the same video input connected as well but only one video input is allowed on each side of your display.

To connect the signal cables to the display:

1. Connect one head of the display controller to the DVI 1 or DisplayPort 1 connector with one of the supplied DVI or DisplayPort cables.
2. Connect another head of the display controller to the DVI 2 or DisplayPort 2 connector with one of the supplied DVI or DisplayPort cables.



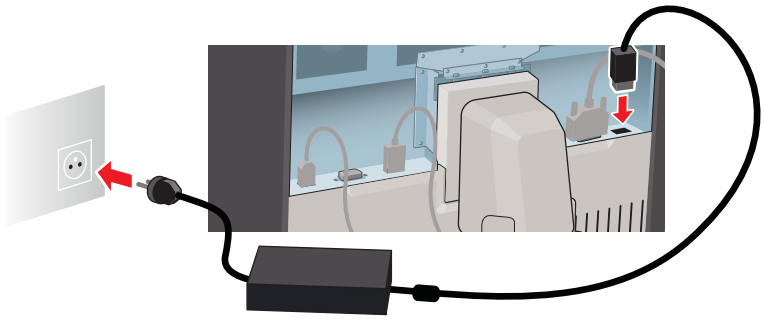
3. If you want to make use of your display's USB downstream connectors, connect a PC USB downstream connector to the display's USB upstream connector by means of the supplied USB 2.0 cable.



3.5 Connecting the power cable

To connect the power cable to the display:

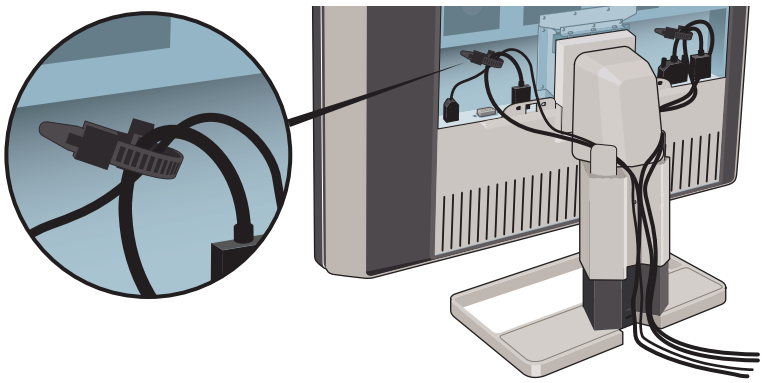
1. Connect the supplied external DC power supply to the +24 VDC power input of your Coronis Fusion 10MP display.
2. Plug the other end of the external DC power supply into a grounded power outlet by means of the proper power cord delivered in the packaging.



3.6 Routing the cables

To route the cables

1. Route all connected cables through the cable routing channel in the stand of your display.



Tip: *The cable straps at the inside of the connector compartment allow you to fix the cables for better shielding of the cables.*

3.7 Re-attaching the covers

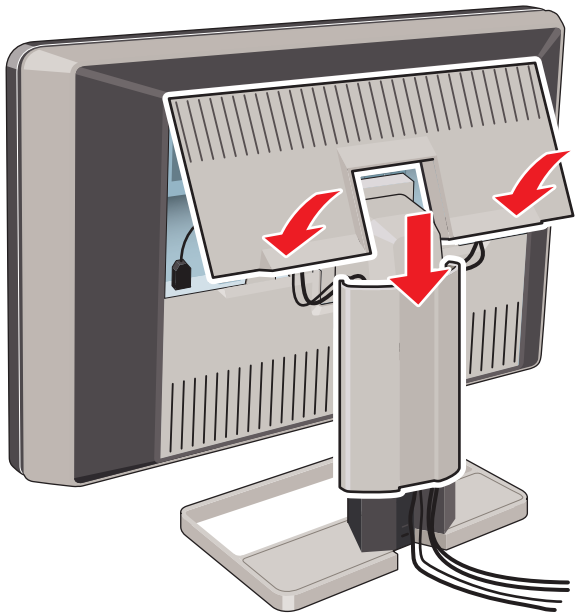
To re-attach the display stand cover

1. Slide the display stand cover downward. You'll hear a "click" sound of the cover's clips when the display stand cover is in position.

Pay attention that all cables stay in the cable channel while re-attaching the cover.

To re-attach the connector compartment cover

1. Slide the cover's top in position and then push the cover's bottom. You'll hear a "click" sound of the cover's clips when the connector compartment cover is in position.



3.8 VESA-mount installation

WARNING: Never move a display attached to an arm by pulling or pushing the display itself. Instead, make sure that the arm is equipped with a VESA approved handle and use this to move the display.

Please refer to the instruction manual of the arm for more information and instructions.

WARNING: Use an arm that is approved by VESA (according to the VESA 100 mm standard).

Use an arm that can support the weight of the display. Refer to the technical specifications of this display for the applicable weight.

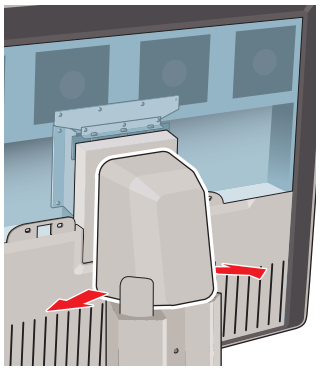
CAUTION: Use an arm that can support a weight of at least 20 kg (44.09 lbs). Failure to do so could make the panel fall, causing serious injury to a child or adult, and serious damage to the equipment.

CAUTION: You should mount the panel in landscape position. Portrait position is possible but not supported.

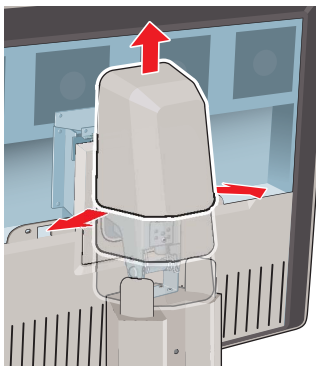
Overview

The panel, standard attached to a stand, is compatible with the VESA 100 mm standard. Thus, it can be used with an arm that is approved by VESA. This chapter shows you how to release the panel from the stand and how to attach it to an arm. If you're not using an arm, you can skip this chapter.

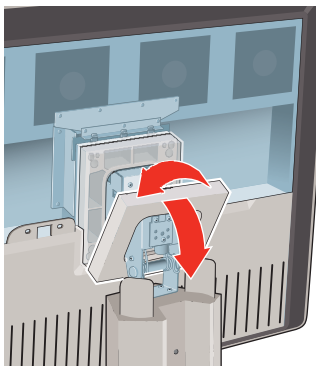
1. Gently pull open both lower sides of the cover.



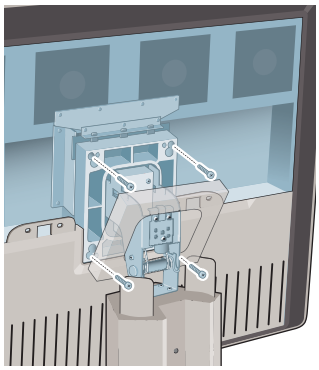
2. Slide the cover upwards while holding the lower sides pulled open.



3. Lift the plastic frame that covers the fixation of the panel to the stand. Turn it for 45 degrees to uncover the fixation screws.



4. Unscrew the four fixation screws fixing the panel to the stand.



5. Attach the panel firmly to the arm using 4 screws M4 x 10 mm.

3.9 First time starting up

Overview

You are now ready to start up your Coronis Fusion 10MP for the first time.

1. Switch on your Coronis Fusion 10MP as described in "Stand-by switching", page 16.
2. Turn on the computer connected to your display.

If you have properly installed your display and display controller, the Windows start-up messages will appear once the boot procedure is finished.

Your Coronis Fusion 10MP will be running in a basic video mode at a default refresh rate when first time starting up. If you are using a Barco display controller, please consult the user guide delivered with it to install the drivers, software and documentation. When this is done, your display will automatically detect the connected video input signal(s) and apply the correct video mode and refresh rate.

4. DAILY OPERATION

4.1 Recommendations for daily operation

Optimize the lifetime of your display

Enabling the Display Power Management System (DPMS) of your display will optimize its diagnostic lifetime by automatically switching off the backlight when the display is not used for a specified period of time. By default, DPMS is enabled on your display, but it also needs to be activated on your workstation. To do this, go to “Power Options Properties” in the “Control Panel”.

Barco recommends setting DPMS activation after 20 minutes of non-usage.

Use a screen saver to avoid image retention

Prolonged operation of an LCD with the same content on the same screen area may result in a form of image retention.

You can avoid or significantly reduce the occurrence of this phenomenon by using a screen saver. You can activate a screen saver in the “Display properties” window of your workstation.

Barco recommends setting screen saver activation after 5 minutes of non-usage. A good screen saver displays moving content.

In case you are working with the same image or an application with static image elements for several hours continuously (so that the screen saver is not activated), change the image content regularly to avoid image retention of the static elements.

Understand pixel technology

LCD displays use technology based on pixels. As a normal tolerance in the manufacturing of the LCD, a limited number of these pixels may remain either dark or permanently lit, without affecting the diagnostic performance of the product. To ensure optimal product quality, Barco applies strict selection criteria for its LCD panels.

To learn more about LCD technology and missing pixels, consult the dedicated white papers available at www.barco.com/healthcare.

Enhance user comfort

Every Barco multi-head display system is color matched with the highest specifications in the market.

Barco recommends keeping color-matched displays together. Furthermore, it is important to use all displays of a multi-head configuration at the same rate to preserve color matching throughout the economic lifetime of the system.

Maximize quality assurance

The 'MediCal QAWeb' system offers online service for high-grade Quality Assurance, providing maximum diagnostic confidence and uptime.

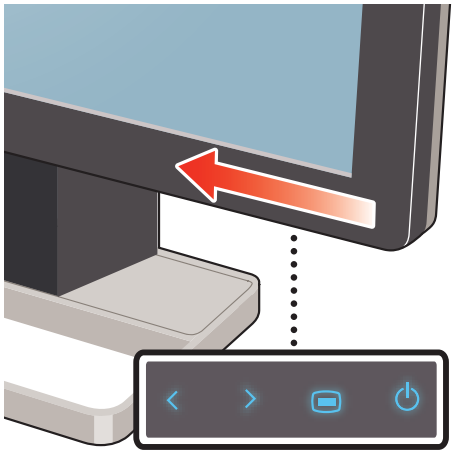
Barco recommends to install MediCal QAWeb Agent and apply the default QAWeb policy at least. This policy includes calibration on regular intervals. Connecting to MediCal QAWeb Server offers even more possibilities.

Learn more and sign up for the free MediCal QAWeb Essential level at www.barco.com/healthcare/qa.

4.2 Key indicator lights

To make the keys light up:

1. Gently sweep your finger over the bottom right hand side of your display.

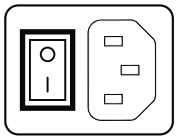


As a result, the keys will light up and are now available for further actions. However, if no further actions are taken within the following 5 seconds, the key indicator lights will dim again.

The key auto-dim function can be disabled in the OSD menus. Please refer to "Key indicator lights", page 20 for detailed instructions on how to do this.

4.3 Stand-by switching

The connected power supply also provides a switch that can be used to turn the power completely off. To use the display, please make sure to switch on this power supply. This can be done by pushing the on/off switch on the power supply into the "|" position.



Switching on the display while it is in stand-by mode or vice versa can both be done by using the keys or by using the control wheel.

To switch your display on using the keys:

1. Light up the keys indicator lights as previously described.
2. While the keys are light up, touch the Stand-by/Cancel key for approximately 2 seconds.

   As a result, the display will switch on and the **power status indicator** light is **dimmed**.

To switch your display on using the control wheel:

1. Press the control wheel for approximately 2 seconds.

   As a result, the display will switch on and the **power status indicator** light is **dimmed**.

The power LED can be disabled in the OSD menus. Please refer to "Power status indicator light", page 20 for detailed instructions on how to do this.

To switch your display to Stand-by using the keys:

1. Light up the keys indicator lights as previously described.
2. While the keys are light up, touch the Stand-by/Cancel key, a small window pops-up. Press the button again to confirm.

   As a result, the display will switch to stand-by mode and the **power status indicator** light is **orange**.

To switch your display to Stand-by using the control wheel:

1. Press the control wheel once, a small window pops-up. Press the control wheel again to confirm.

   As a result, the display will switch to stand-by mode and the **power status indicator** light is **orange**.

In case of a power outage recovery, your display will always start-up in the power mode it was in before the power interruption (i.e. stand-by or on). This protects your display against inadvertent image retention problems.

4.4 Bringing up the OSD menus

About OSD menu

The OSD menu allows you to configure different settings to make your Coronis Fusion 10MP display fit your needs within your working environment. Also, you can retrieve general information about your display and its current configuration settings through the OSD menu.

Bringing up the OSD menus can be done by using the keys or by using the control wheel.

How to bring up the OSD menus using the keys

1. If not already done so, switch on the display as previously described.
2. Light up the keys indicator lights as previously described.
3. While the keys light up, touch the Menu/Enter key.

   As a result, the OSD main menu comes up in the bottom right corner of the screen. If no further actions are taken within the following 90 seconds however, the OSD menu will disappear again.

How to bring up the OSD menus using the control wheel

1. If not already done so, switch on the display as previously described.
2. Shortly turn the control wheel.

   As a result, the OSD main menu comes up in the bottom right corner of the screen. If no further actions are taken within the following 90 seconds however, the OSD menu will disappear again.

The OSD menu auto-exit function can be disabled in the OSD menu. Please refer to "OSD menu automatic close function", page 19 for detailed instructions on how to do this.

The OSD menu position can be modified in the OSD menu. Please refer to "OSD menu position", page 19 for detailed instructions on how to do this.

4.5 Navigating through the OSD menus

About OSD menu navigation

Navigating through the OSD menu can be done by using the keys or by using the control wheel.

How to navigate through the OSD menus using the keys

1. Use the Right/Down and Left/Up keys to move through the (sub)menus, change values or make selections.
2. To go into a submenu or confirm adjustments and selections, use the Menu/Enter key.
3. Use the Stand-by/Cancel key to cancel adjustments or exit a (sub)menu.
4. Exit the OSD menu by touching the Stand-by/Cancel key for approximately 2 seconds.

How to navigate through the OSD menus using the control wheel

1. Rotate the control wheel to move through the menus, change values or make selections.
2. To go into a submenu or confirm adjustments and selections, shortly click the control wheel.
3. Click the control wheel for approximately 2 seconds to cancel adjustments or exit a (sub)menu.

5. ADVANCED OPERATION

5.1 OSD menu position

About the OSD menu position

By default, the OSD menu comes up in the bottom center position of the screen. This position can be modified however. There's choice from a number of predefined positions.

To change the position of the OSD menu:

1. Bring up the OSD main menu.
2. Navigate to the *Configuration* > *User Interface* > *Menu* menu.
3. Enter the *Position* submenu.
4. Select one of the available OSD menu positions and confirm.

5.2 OSD menu language

About the OSD menu language

By default, the OSD menu comes up in English. However, there's a wide range of other languages available for the OSD menu of your Coronis Fusion 10MP.

To change the language of the OSD menu:

1. Bring up the OSD main menu.
2. Navigate to the *Configuration* > *User Interface* > *Menu* menu.
3. Enter the *Language* submenu.
4. Select one of the available languages and confirm.

5.3 OSD menu automatic close function

About the OSD menu automatic close function

By default, the OSD menu will disappear automatically after approximately 90 seconds of inactivity. However, this function can be disabled so that the OSD menu remains on the screen until manually closed.

To enable/disable the OSD menu automatic close function:

1. Bring up the OSD main menu.
2. Navigate to the *Configuration* > *User Interface* > *Menu* menu.
3. Enter the *Automatic Close* submenu.
4. Select *Enabled/Disabled* as desired and confirm.

5.4 Power status indicator light

About the power status indicator light

By default, when the display is switched on, the power status indicator light is dimmed. This behavior can be changed so that the power status indicator light will be **blue** when the display is switched on.

When the display is in stand-by mode, the power status indicator light will always turn orange, even when the power status indicator light is disabled.

To enable/disable the power status indicator light:

1. Bring up the OSD main menu.
2. Navigate to the *Configuration* > *User Interface* > *Indicator Lights* menu.
3. Enter the *Power Status* submenu.
4. Select *Enabled/Disabled* as desired and confirm.

5.5 Key indicator lights

About the key indicator lights

By default, after lighting up, the key indicator lights will dim again if no further actions are taken within the following 5 seconds. However, this behavior can be changed so that the key indicator lights are always on or always off.

To configure the key indicator lights

1. Bring up the OSD main menu.
2. Navigate to the *Configuration* > *User Interface* > *Indicator Lights* menu.
3. Enter the *Keys* submenu.
4. Select *Automatic/Always On/Always Off* as desired and confirm.

5.6 Power lock function

About the power lock function

By enabling the power lock function, the Coronis Fusion 10MP is forced to remain switched on. This means that it can't be switched to stand-by mode manually until the power lock function is disabled again.

To enable/disable the power lock function:

1. Bring up the OSD main menu.
2. Navigate to the *Configuration* > *User Interface* > *Controls* menu.
3. Enter the *Power Lock* submenu.
4. Select *Enabled/Disabled* as desired and confirm.

5.7 Keys sound

About keys sound

By default, the keys will make a “beep” sound on every touch. However, this sound can be disabled so that no sound will be heard when using the keys.

To enable/disable the keys sound:

1. Bring up the OSD main menu.
2. Navigate to the *Configuration* > *User Interface* > *Controls* menu.
3. Enter the *Sound* submenu.
4. Select *Enabled/Disabled* as desired and confirm.

5.8 Ethernet over USB

About Eth. over USB

By default, the Ethernet over USB will be disabled. This does not disable the USB hub and still allows to make use of the display’s USB downstream connectors and any external devices connected to it (keyboard, mouse, ...).

Please note that a connection from a PC USB downstream connector to the display’s USB upstream connector is required to be able to use this functionality.

By enabling the Ethernet over USB, you allow the internal Coronis Fusion 10MP processor to communicate directly over USB with the connected PC.

Enabling the Ethernet over USB is only recommended when you are using a non-Barco display controller. If you are using a Barco display controller, this communication will automatically be done over the connected video cable(s).

To enable/disable the eth. over USB:

1. Bring up the OSD main menu.
2. Navigate to the *Configuration* > *Connectivity* menu.
3. Enter the *Eth. over USB* submenu.
4. Select *Enabled/Disabled* as desired and confirm.

5.9 USB

About USB

By default, USB will be enabled. This will allow the connected PC to communicate directly over USB with the internal Coronis Fusion 10MP processor.

By disabling USB, communication between the internal Coronis Fusion 10MP processor and the connected PC will not be possible. This does not disable the USB hub and still allows to make use of the display’s USB downstream connectors and any external devices connected to it (keyboard, mouse, ...).

Please note that a connection from a PC USB downstream connector to the display’s USB upstream connector is required to be able to use this functionality.

Enabling the USB endpoint is only recommended when you are using a non-Barco display controller. If you are using a Barco display controller, this communication will automatically be done over the connected video cable(s).

To enable/disable USB:

1. Bring up the OSD main menu.
2. Navigate to the *Configuration* > *Connectivity* menu.
3. Enter the *USB* submenu.
4. Select *Enabled/Disabled* as desired and confirm.

5.10 DPMS mode

About DPMS mode

Enabling the Display Power Management System (DPMS) mode on your display will optimize its diagnostic lifetime by automatically switching off the backlight when the display is not used for a specified period of time. By default, DPMS mode is enabled on your display, but it also needs to be activated on your workstation. To do this, go to the “Power options properties” window of your workstation.

Barco recommends setting DPMS activation after 20 minutes of non-usage.

To enable/disable DPMS mode on your display:

1. Bring up the OSD main menu.
2. Navigate to the *Configuration* > *Power Management* menu.
3. Enter the *DPMS Mode* submenu.
4. Select *Enabled/Disabled* as desired and confirm.

5.11 Luminance target

About the luminance target

The luminance target of your Coronis Fusion 10MP is adjustable over a predefined range. When you change the luminance target, the display will adjust its backlight to reach the target.

To set the luminance target:

1. Bring up the OSD main menu.
2. Navigate to the *Configuration* > *Calibration* menu.
3. Enter the *Luminance Target* submenu.
4. Set a luminance target value as desired and confirm.

The default, factory DICOM calibrated luminance value is available in the technical specifications table. The guaranteed backlight lifetime is valid for this setting.

5.12 Viewing modes

About viewing modes

The Coronis Fusion 10MP can be used in two viewing modes:

Diagnostic	This mode provides the full calibrated luminance and is intended for using the display for diagnostic purposes.
Text	In this mode, the luminance is reduced to approximately half of the luminance. This is intended for using the display with office applications such as word processing. Please note that text mode is not persistent, once powered off, the unit will restart in diagnostic mode.

To quickly switch the viewing mode without having to enter the OSD menu, touch the left and right key (the two leftmost buttons) at the same time during normal operation.

As the Coronis Fusion 10MP is intended to be used in a diagnostic environment, the diagnostic mode should always be selected.

To select a viewing mode:

1. Bring up the OSD main menu.
2. Navigate to the *Configuration* > *Calibration* menu.
3. Enter the *Viewing Mode* submenu.
4. Select *Diagnostic/Text* as desired and confirm.

5.13 Display functions

About display functions

Native, uncorrected panels will display all grayscale/color levels with luminance increments that are not optimal for crucial diagnostic information. Studies have shown however, that in medical images certain grayscale/color parts contain more diagnostic information then others. To respond to these conclusions, display functions have been defined. These functions emphasize on these parts containing crucial diagnostic information by correcting the native panel behavior.

Native	If you select Native, the native panel behavior will not be corrected.
Dynamic Gamma 1.8 Dynamic Gamma 2.2	These are gamma functions that are shifted to take into account the non-zero luminance of an LCD panel when driven with a “black” signal. They are especially useful in CT applications to improve the perception of low Hounsfield values.

DICOM	DICOM (Digital Imaging and Communications in Medicine) is an international standard that was developed to improve the quality and communication of digital images in radiology. In short, the DICOM display function results in more visible grayscales in the images. Barco recommends selecting the DICOM display function for most medical viewing applications.
User	This display function will be automatically selected when display functions are defined by MediCal QAWeb.
Gamma 1.8 Gamma 2.2	Select one of these display functions in case the display is to replace a CRT display with a gamma of 1.8 or 2.2 respectively.

To select a display function:

1. Bring up the OSD main menu.
2. Navigate to the *Configuration* > *Calibration* menu.
3. Enter the *Display Function* submenu.
4. Select one of the available display functions and confirm.

5.14 Ambient Light Compensation (ALC)

About ALC

Ambient Light Compensation (ALC) can only be enabled on your display when the DICOM display function is selected. Therefore, please refer to "Display functions", page 23 to correctly set the display function.

When ALC is enabled, the DICOM display function will be recalculated taking a preset ambient light correction value into account. This value is determined by the selected reading room. Therefore, it is also important to select a realistic reading room when enabling ALC. This can be done by following the instructions in "Reading rooms", page 24.

To enable/disable ALC:

1. Bring up the OSD main menu.
2. Navigate to the *Configuration* > *Calibration* > *Ambient Light* menu.
3. Enter the *Ambient Light Compensation* submenu.
4. Select *Enabled/Disabled* as desired and confirm.

5.15 Reading rooms

About reading rooms

Reading rooms can only be selected when the DICOM display function is selected. Therefore, please refer to "Display functions", page 23 to correctly set the display function.

The American Association of Physicists in Medicine (AAPM) composed a list of pre-defined reading rooms. Each of these reading rooms are defined by following parameters:

- the maximum light allowed in this type of room
- the preset ambient light correction value for this reading room

These parameters are stored in your display and determine the preset ambient light correction value to take into account to recalculate the DICOM display function when Ambient Light Compensation (ALC) is enabled. Please refer to "Ambient Light Compensation (ALC)", page 24 to enable ALC.

The available reading rooms for your Coronis Fusion 10MP are:

CR/DR/ MAMMO	Corresponds to light conditions in diagnostic reading rooms for computed radiology, digital radiology or mammography. This setting has the lowest maximum ambient light.
CT/MR/NM	Corresponds to light conditions in diagnostic reading rooms for computed tomography, magnetic resonance or nuclear medicine scans.
Staff Office	Corresponds to light conditions in office rooms.
Clinical Viewing Room	Corresponds to light conditions in diagnostic reading rooms for clinical viewing.
Emergency Room	Corresponds to light conditions in emergency rooms.
Operating Room	Corresponds to light conditions in operating rooms. This setting has the highest maximum ambient light.

To select a reading room:

1. Bring up the OSD main menu.
2. Navigate to the *Configuration* > *Calibration* > *Ambient Light* menu.
3. Enter the *Reading Room* submenu.
4. Select one of the available reading rooms and confirm.

5.16 Continuous ALC

About Continuous ALC

Continuous ALC can only be selected when the DICOM display function is selected. Therefore, please refer to "Display functions", page 23 to correctly set the display function.

Enabling continuous ALC will continuously recalculate the DICOM display function taking the averaged ambient light into account.

To select continuous ALC:

1. Bring up the OSD main menu.
2. Navigate to the *Configuration* > *Calibration* > *Ambient Light* menu.
3. Enter the *Continuous ALC* submenu.
4. Select *Enabled/Disabled* as desired and confirm.

5.17 Embedded QA

Overview

- About Embedded QA
- DICOM status report
- DICOM compliance check
- DICOM calibration
- Reset DICOM calibration
- DICOM error threshold

5.17.1 About Embedded QA

About

Embedded QA allows you to run a display calibration or compliance test directly from the display using the OSD menus described in the next sections. Embedded QA will use the front sensor / I-Guard to measure the necessary luminance levels for either a calibration or compliance test. Various settings for both actions can be selected from the display's OSD menu. The last results of both actions can be consulted from the OSD.

Embedded QA or MediCal QAWeb?

Embedded QA is not a replacement for the Barco MediCal QAWeb solution.

Although Embedded QA is a reliable option to perform a simple calibration or compliance test, Barco still highly recommends MediCal QAWeb as the solution of choice for calibration and QA. Medical QAWeb brings many benefits such as centralized asset management, the ability to schedule tasks, remote management, automated reporting, alerting and specific support of regional QA standards such as DIN 6868-57, JESRA and AAPM TG18. That's why MediCal QAWeb Agent acts as the master for all supported displays from the moment it is installed and running. MediCal QAWeb Agent will take over from Embedded QA and overwrite any settings which were applied by Embedded QA.

5.17.2 DICOM status report

About DICOM status report

Following information is available:

DICOM Compliance Status (status since last compliance check)	Compliance status	Shows if the current DICOM curve is compliant or not.
	Maximum error	Shows the maximum error of the current DICOM curve. This is the deviation compared to a perfect DICOM.
	Error threshold	Shows the error threshold. This is the maximum error allowed before a DICOM calibration is required.
	Time elapsed since latest compliance check	Shows the backlight runtime since last compliance check.
	Display Function	Shows the current display function.
	Ambient light compensation	Shows the ambient light compensation status.
	Reading Room	Shows the selected reading room.
	Luminance	Shows the measured luminance.
	Black luminance	Shows the measured backlight luminance.

DICOM Calibration Status	No calibration executed yet.	No other information is visible
	Calibration executed.	When the calibration is executed, the following extra information is shown: Backlight runtime elapsed since latest calibration, display function, ambient light compensation, reading room.
Current DICOM Settings	Display function	Shows the current display function.
	Ambient Light Compensation	Shows the ambient light compensation status.
	Reading room	Shows the selected reading room.

To retrieve the DICOM status report:

1. Bring up the OSD main menu.
2. Navigate to the *Configuration* > *Calibration* > *Embedded QA* menu.
3. Select *DICOM status report* to make the information visible on the screen.

5.17.3 DICOM compliance check

About DICOM compliance check

The DICOM compliance check will measure the DICOM curve of your display in different steps. After measurement, the DICOM status report is shown.

To start DICOM compliance check:

1. Bring up the OSD main menu.
2. Navigate to the *Configuration* > *Calibration* > *Embedded QA* menu.
3. Select *DICOM compliance check* to start the compliance check.
   Warning:*Pressing a key during the compliance check will abort the check.*

5.17.4 DICOM calibration

About DICOM calibration

The DICOM calibration will add a correction to the current DICOM curve to approach the perfect DICOM curve as good as possible.

To start DICOM calibration:

1. Bring up the OSD main menu.
2. Navigate to the *Configuration* > *Calibration* > *Embedded QA* menu.
3. Select *DICOM calibration* to start the calibration.
   Warning:*Pressing a key during calibration will abort the calibration, previous values will be restored.*

   Note: *After calibration, the compliance check will start automatically.*

5.17.5 Reset DICOM calibration

About reset DICOM calibration

It is possible to restore the original (not corrected) DICOM curve.

To reset the DICOM calibration:

1. Bring up the OSD main menu.
2. Navigate to the *Configuration* > *Calibration* > *Embedded QA* menu.

3. Enter the *DICOM preferences* submenu.
4. Select *reset DICOM calibration* to restore the original (not corrected) DICOM curve.

5.17.6 DICOM error threshold

About DICOM error threshold

The threshold to define the DICOM compliance can be modified in steps of 5% starting from 5 to 30%. When the maximum deviation is not bigger than the selected threshold, the compliance check will be OK.

To set the DICOM error threshold:

1. Bring up the OSD main menu.
2. Navigate to the *Configuration* > *Calibration* > *Embedded QA* menu.
3. Enter the *DICOM preferences* submenu.
4. Set *DICOM error threshold* as desired and confirm.

5.18 Image scaling

About image scaling

Enabling image scaling will multiply each individual pixel to one or more adjacent pixels so that the size of the displayed image will be a multiple of the original image source video input signal.

Image scaling is only possible when the resolution of your display's video input signal is less than or equal to half the maximum resolution of the display.

To enable/disable image scaling:

1. Bring up the OSD main menu.
2. Navigate to the *Configuration* > *Image Source* menu.
3. Enter the *Scaling* submenu.
4. Select *Enabled/Disabled* as desired and confirm.

5.19 Image source selection modes

About image source selection modes

Your Coronis Fusion 10MP automatically detects the number of video input signals connected, attaches them to the correct display side and applies the correct video settings to it (resolution, video encoding mode, refresh rate,...). However, it may be needed to manually select the video input signal(s) to be displayed on a certain display side or to adjust certain video settings yourself. The start to this is selecting one of the following image source selection modes available for your display:

Automatic	In this mode, your display automatically detects the connected video input signals, attaches them to the correct display side and applies the correct video settings to it (resolution, video encoding mode, refresh rate,...). No video settings are available when this mode is selected.
One Image Source	This mode is intended for displaying and manually configuring only one connected video input signal. When selecting this mode, the video settings become available for the selected video input signal.
Two Image Sources	This mode is intended for displaying and manually configuring two connected video input signals (one on each display side). When selecting this mode, the video settings become available for the selected video input signal on each side of the display.

To select an image source selection mode:

1. Bring up the OSD main menu.
2. Navigate to the *Configuration* > *Image Sources* menu.
3. Enter the Image *Source Selection* submenu.
4. Select one of the available image source selection modes and confirm.

5.20 Video input signals

Your Coronis Fusion 10MP display automatically detects the connected video input signals. Manually selecting image source video input signals is possible, but then your display's image source selection mode should be set to allow this. Please refer to "Image source selection modes", page 28 to do this.

About input signals

The available input signals for your display are:

DisplayPort 1	The input corresponding to the DisplayPort 1 connector.
DVI 1	The input corresponding to the DVI 1 connector.
DisplayPort 2	The input corresponding to the DisplayPort 2 connector.
DVI 2	The input corresponding to the DVI 2 connector.
Automatic Selection	The input is automatically selected.

To manually select a video input signal:

1. Bring up the OSD main menu.
2. Navigate to the *Configuration* > *Image Sources* > *(Left/Right) Image Source* menu.
3. Enter the *Input Signal* submenu.
4. Select one of the available input signals and confirm.

5.21 Video encoding modes

Your Coronis Fusion 10MP display automatically detects the connected video input signals and applies the correct video encoding settings. Manually selecting a video encoding mode is possible, but then your display's image source selection mode should be set to allow this. Please refer to "Image source selection modes", page 28 to do this.

About video encoding modes

Video encoding modes specify how the color and luminance information is encoded in the video signal. In consumer displays, this is usually done by a limited 8-bit encoding mechanism. Your Coronis Fusion 10MP however, features 10-bit encoding enabling it to better match the DICOM defined grayscale range. Such an extensive range is necessary to comply with the guidelines set forward by the latest medical guidelines.

The available video encoding modes for your display are listed below.

Please note that the display controller connected to your display might not always support all these video encoding modes.

Standard	This mode uses the standard 8 bit encoding mechanism.
HDR1	This mode features 10-bit video encoding following the High Dynamic Range (HDR) standard, usually used on color displays.
HDR2	HDR2 is a Barco specific mode featuring 10-bit video encoding following the High Dynamic Range (HDR) standard but allowing full refresh rate (which is not always possible with HDR1). This mode is usually used on color displays.
Dual 10 (only with Barco display controller)	Dual 10 is a Barco specific 10-bit video encoding mode which is usually used on grayscale displays and which allows full refresh rate.
Automatic	When selecting this option, your Coronis Fusion 10MP will automatically assign the correct video encoding settings to the connected video input signals.

To manually select a video encoding mode:

1. Bring up the OSD main menu.
2. Navigate to the *Configuration* > *Image Sources* > *(Left/Right) Image Source* menu.
3. Enter the *Video Encoding* submenu.
4. Select one of the available video encoding modes and confirm.

5.22 Grayscale conversion modes

Your Coronis Fusion 10MP display automatically detects the connected video input signals and applies the correct grayscale conversion settings. Manually selecting a grayscale conversion mode is possible, but then your display's image source selection mode should be set to allow this. Please refer to "Image source selection modes", page 28 to do this.

About grayscale conversion modes

Grayscale conversion modes specify how color generated on the display controller is converted to grayscale in your display.

The available grayscale conversion modes are:

No Conversion	
Use Red Channel	This mode is intended for grayscale displays where gray is sent over the red channel.
Use Green Channel	This mode is intended for grayscale displays where gray is sent over the green channel.
Use Blue Channel	This mode is intended for grayscale displays where gray is sent over the blue channel.
Use All Channels	This mode is intended for grayscale displays where gray is sent over the red, green and blue channel. This is done by means of a standard conversion mechanism where 30% red, 59% green and 11% blue are used to generate gray.

To manually select a grayscale conversion mode:

1. Bring up the OSD main menu.
2. Navigate to the *Configuration* > *Image Sources* > *(Left/Right) Image Source* menu.
3. Enter the *Grayscale Conversion* submenu.
4. Select one of the available color conversion modes and confirm.

5.23 EDID timings

Your Coronis Fusion 10MP display automatically detects the connected video input signals and applies the correct timings. Manually configuring the EDID timings is possible, but then your display's image source selection mode should be set to allow this. Please refer to "Image source selection modes", page 28 to do this.

About EDID timings

Following EDID timings are available for your Coronis Fusion 10MP:

Resolution	Allows to manually modify the resolution of the image source video input signal.
Refresh Rate	Allows to manually select the refresh rate of the image source video input signal depending on the maximum refresh rate of the display controller connected to your display.
Color Depth	Allows to change the color depth to 8 or to 10 bit.

To manually set EDID timings:

1. Bring up the OSD main menu.
2. Navigate to the *Configuration* > *Image Sources* > *(Left/Right) Image Source* menu.
3. Enter the *Timings* submenu.
4. Select *Resolution, Refresh Rate* or *Color Depth*.
5. Select one of the available settings and confirm.

5.24 Display info

About display info

Your display serial number, color type, native resolution, firmware versions, etc. are available in a dedicated submenu of the OSD menu.

To retrieve info about your display:

1. Bring up the OSD main menu.
2. Navigate to the *About this Display* menu to make the information visible on the screen.

5.25 Display status

About display status

The Status submenu of the OSD menu provides info on the current status of your display (runtimes, temperatures, etc.), the status of the connected image sources (video encoding mode, timings, etc.), the current calibration status of your display (display function, luminance, ALC, etc.) and the status about activated connections.

To retrieve the status of your display:

1. Bring up the OSD main menu.
2. Navigate to the *Status* menu.
3. Enter the *Display, Image Sources, Calibration* or *Connectivity* submenu as desired.

6. REPACKAGING INSTRUCTIONS

WARNING: Before repacking the display, follow the instruction to replace the protection buffer to prevent damage to the display.

Overview of the packaging

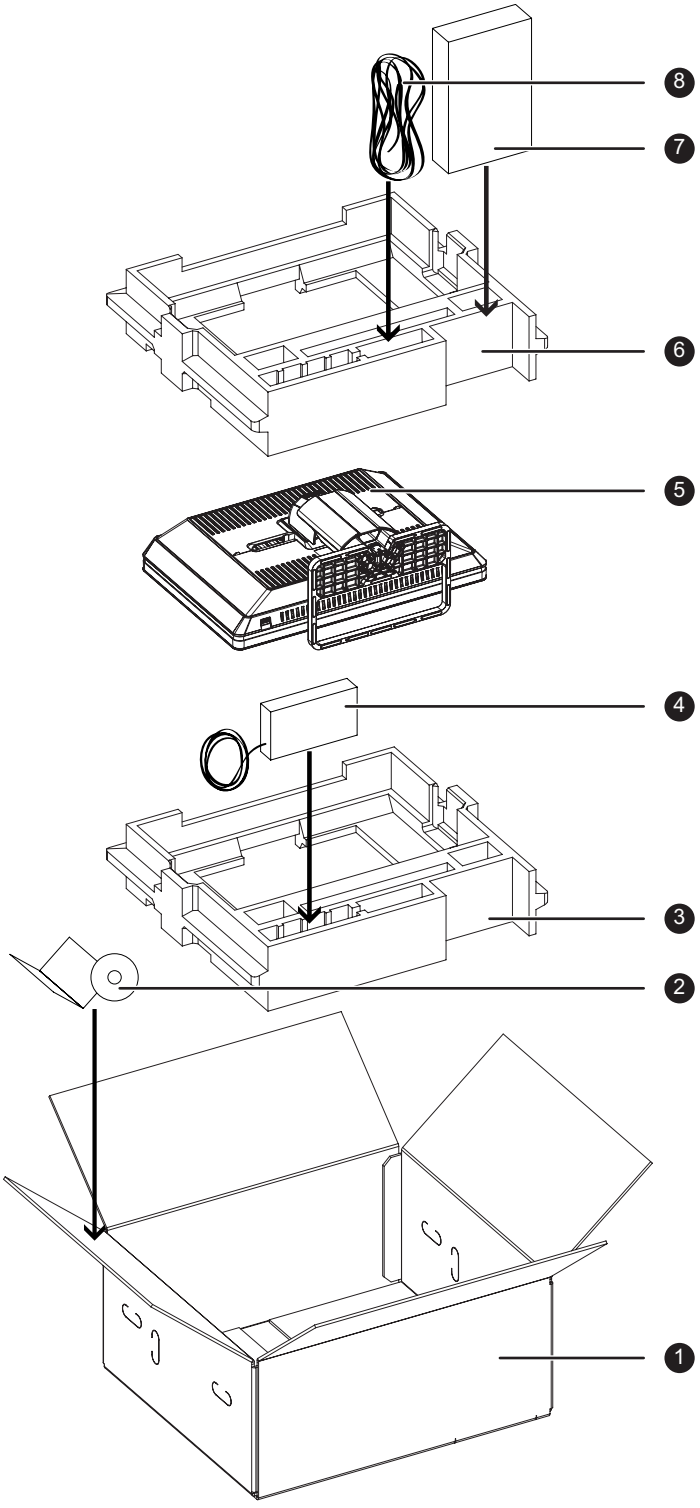


Image 6-1

1. Box
2. System CD + User guide
3. Bottom buffer
4. Power supply
5. Coronis Fusion 10MP display
6. Top buffer
7. Display controller box
8. Cables (video, USB, power)

6.1 Repacking your display

How to repack your display

1. Place the empty box on a stable surface.
2. Slide the system CD, documentation CD and user guide in the dedicated bag attached at the inside of the box.
3. Place the bottom buffer in the box.
4. Put the power supply in the dedicated cavity of the bottom buffer.
5. Put the Coronis Fusion 10MP display in its original bag and place it in the box with its panel facing downwards.
6. Put the top buffer on top of the display.
7. When applicable, slide the display controller box in the dedicated cavity of the buffers.
8. Put all cables (video, USB, power) in their original bag and slide them in the dedicated cavity of the buffers.
9. Close and seal the box.

7. CLEANING YOUR DISPLAY

7.1 Cleaning instructions

To clean the display

Clean the display using a sponge, cleaning cloth or soft tissue, lightly moistened with a recognized cleaning product for medical equipment. Read and follow all label instructions on the cleaning product. In case of doubt about a certain cleaning product, use plain water.

Do not use following products:

- Alcohol/solvents at higher concentration > 5%
- Strong alkalis lye, strong solvents
- Acid
- Detergents with fluoride
- Detergents with ammonia
- Detergents with abrasives
- Steel wool
- Sponge with abrasives
- Steel blades
- Cloth with steel thread

CAUTION: Take care not to damage or scratch the front glass or LCD. Be careful with rings or other jewelry and do not apply excessive pressure on the front glass or LCD.

CAUTION: Do not apply or spray liquid directly to the display as excess liquid may cause damage to internal electronics. Instead, apply the liquid to a cleaning cloth.

8. IMPORTANT INFORMATION

8.1 Safety information

General recommendations

Read the safety and operating instructions before operating the device.

Retain safety and operating instructions for future reference.

Adhere to all warnings on the device and in the operating instructions manual.

Follow all instructions for operation and use.

Electrical Shock or Fire Hazard

To prevent electric shock or fire hazard, do not remove cover.

No serviceable parts inside. Refer servicing to qualified personnel.

Do not expose this apparatus to rain or moisture.

Modifications to the unit:

Do not modify this equipment without authorization of the manufacturer.

Type of protection (electrical):

Display with external power supply: Class I equipment.

Degree of safety (flammable anesthetic mixture):

Equipment not suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide.

Non-patient care equipment

- Equipment primarily for use in a health care facility that is intended for use where contact with a patient is unlikely (no applied part).
- The equipment may not be used with life support equipment.
- The user should not touch the equipment, nor its signal input ports (SIP)/signal output ports (SOP) and the patient at the same time.

Power connection – Equipment with external 24 VDC power supply

- Power requirements: The equipment must be powered using the delivered medical approved 24 VDC (⎓) SELV power supply.
- The medical approved DC (⎓) power supply must be powered by the AC mains voltage.
- The power supply is specified as a part of the ME equipment or combination is specified as a ME system.
- To avoid the risk of electric shock, this equipment must only be connected to a supply mains with protective earth.
- The equipment should be installed near an easily accessible outlet.
- The equipment is intended for continuous operation.

Transient over-voltage

If the device is not used for a long time, disconnect it from the AC inlet to avoid damage by transient over-voltage.

To fully disengage the power to the device, please disconnect the power cord from the AC inlet.

Power cords:

- Utilize a UL-listed detachable power cord, 3-wire, type SJ or equivalent, 18 AWG min., rated 250 V min., provided with a hospital-grade type plug 5-15P configuration for 120V application, or 6-15P for 240V application.
- Do not overload wall outlets and extension cords as this may result in fire or electric shock.
- Mains lead protection (U.S.: Power cord): Power cords should be routed so that they are not likely to be walked upon or pinched by items placed upon or against them, paying particular attention to cords at plugs and receptacles.
- The power supply cord should be replaced by the designated operator only at all time.
- Use a power cord that matches the voltage of the power outlet, which has been approved and complies with the safety standard of your particular country.

Water and moisture

Never expose the display to rain or moisture.

Never use the display near water - e.g. near a bathtub, washbasin, swimming pool, kitchen sink, laundry tub or in a wet basement.

Ventilation

Do not cover or block any ventilation openings in the cover of the set. When installing the device in a cupboard or another closed location, heed the necessary space between the set and the sides of the cupboard.

Installation

Place the device on a flat, solid and stable surface that can support the weight of at least 3 devices. If you use an unstable cart or stand, the device may fall, causing serious injury to a child or adult, and serious damage to the device.

This apparatus conforms to:

CE0120 (MDD 93/42/EEC; A1:2007/47/EC class IIb product), CE - 2004/108/EC, IEC 60950-1:2005 + A1:2009 (2ND EDITION), IEC 60601-1 2ND ED:1988 + A1:1991 + A2:1995, UL 60601-1 1ST EDITION, CAN/CSA-C22.2 NO. 601.1-M90:2005, IEC 60601-1:2005, ANSI/AAMI ES 60601-1:2005 + C1:2009 + A2:2010, CAN/CSA C22.2 No. 60601-1-08:2008, DEMKO - EN 60601-1:2006, EN 60601-1-2:2007, CCC - GB9254-2008 + GB4943.1-2011 + GB17625.1-2012, KC, VCCI, FCC class B, ICES-001 Level B, FDA 510K, RoHS

National Scandinavian Deviations for CL. 1.7.2:

Finland: "Laite on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan"

Norway: "Apparatet må tilkoples jordet stikkontakt"

Sweden: "Apparaten skall anslutas till jordat uttag"

8.2 Environmental information

Disposal Information

Waste Electrical and Electronic Equipment

This symbol on the product indicates that, under the European Directive 2012/19/EU governing waste from electrical and electronic equipment, this product must not be disposed of with other municipal

waste. Please dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate these items from other types of waste and recycle them responsibly to promote the sustainable reuse of material resources.

For more information about recycling of this product, please contact your local city office or your municipal waste disposal service.

For details, please visit the Barco website at: http://www.barco.com/en/AboutBarco/weee

Mercury Notice

This Barco product consists of materials that may contain mercury, which must be recycled or disposed of in accordance with local, state, or country laws:

- Within this system, the lamps in the device contain mercury

Turkey RoHS compliance

Türkiye Cumhuriyeti: AEEE Yönetmeliğine Uygundur.

[Republic of Turkey: In conformity with the WEEE Regulation]

中国大陆 RoHS

Chinese Mainland RoHS

根据中国大陆《电子信息产品污染控制管理办法》(也称为中国大陆RoHS)，以下部分列出了Barco产品中可能包含的有毒和/或有害物质的名称和含量。中国大陆RoHS指令包含在中国信息产业部MCV标准：“电子信息产品中有毒物质的限量要求”中。

According to the “China Administration on Control of Pollution Caused by Electronic Information Products” (Also called RoHS of Chinese Mainland), the table below lists the names and contents of toxic and/or hazardous substances that Barco’s product may contain. The RoHS of Chinese Mainland is included in the MCV standard of the Ministry of Information Industry of China, in the section “Limit Requirements of toxic substances in Electronic Information Products”.

零件项目(名称) **Component name**	**有毒有害物质或元素** **Hazardous substances and elements**					
	铅 **Pb**	**汞** **Hg**	**镉** **Cd**	**六价铬** **Cr6+**	**多溴联苯** **PBB**	**多溴二苯醚** **PBDE**
印制电路配件 Printed Circuit Assemblies	x	o	o	o	o	o
液晶面板 LCD panel	x	x	o	o	o	o
外接电(线)缆 External Cables	x	o	o	o	o	o
內部线路 Internal wiring	o	o	o	o	o	o
金属外壳 Metal enclosure	o	o	o	o	o	o
塑胶外壳 Plastic enclosure	o	o	o	o	o	o

零件项目(名称) Component name	有毒有害物质或元素 Hazardous substances and elements					
	铅 Pb	汞 Hg	镉 Cd	六价铬 Cr6+	多溴联苯 PBB	多溴二苯醚 PBDE
散热片(器) Heatsinks	o	o	o	o	o	o
电源供应器 Power Supply Unit	x	o	o	o	o	o
风扇 Fan	o	o	o	o	o	o
文件说明书 Paper Manuals	o	o	o	o	o	o
光盘说明书 CD manual	o	o	o	o	o	o
O: 表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T 11363-2006 标准规定的限量要求以下. O: Indicates that this toxic or hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in SJ/T11363-2006.						
X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T 11363-2006 标准规定的限量要求. X: Indicates that this toxic or hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement in SJ/T11363-2006						

在中国大陆销售的相应电子信息产品(EIP)都必须遵照中国大陆《电子信息产品污染控制标识要求》标准贴上环保使用期限(EFUP)标签。Barco产品所采用的EFUP标签(请参阅实例，徽标内部的编号使用于制定产品)基于中国大陆的《电子信息产品环保使用期限通则》标准。

All Electronic Information Products (EIP) that are sold within Chinese Mainland must comply with the “Electronic Information Products Pollution Control Labeling Standard” of Chinese Mainland, marked with the Environmental Friendly Use Period (EFUP) logo. The number inside the EFUP logo that Barco uses (please refer to the photo) is based on the “Standard of Electronic Information Products Environmental Friendly Use Period” of Chinese Mainland.

8.3 Regulatory compliance information

Indications for use

The Coronis Fusion 10MP is intended to be used as a tool in displaying and viewing digital images including digital mammography, for review and analysis by trained medical practitioners.

Caution (USA): Federal law restricts this device to sale by or on the order of a physician. (Details & exemptions are in the Code of Federal Regulations Title 21, 801 Part D).

FCC class B

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This device has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This device generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this device does cause harmful interference to radio or television reception, which can be determined by turning the device off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the device and receiver.
- Connect the device into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Canadian notice

This ISM device complies with Canadian ICES-001.

Cet appareil ISM est conforme à la norme NMB-001 du Canada.

8.4 EMC notice

General information

No specific requirement on the use of external cables or other accessories except power supply.

With the installation of the device, use only the delivered power supply or a spare part provided by the legal manufacturer. Using another can result in a decrease of the immunity level of the device.

Electromagnetic emissions

The Coronis Fusion 10MP is intended for use in the electromagnetic environment specified below. The customer or the user of the Coronis Fusion 10MP should assure that it is used in such an environment.

Emissions test	**Compliance**	**Electromagnetic environment – Guidance**
RF emissions CISPR 11	Group 1	The Coronis Fusion 10MP uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.

Emissions test	Compliance	Electromagnetic environment – Guidance
RF emissions CISPR 11	Class B	The Coronis Fusion 10MP is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2	Class D	
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Complies	

This Coronis Fusion 10MP complies with appropriate medical EMC standards on emissions to, and interference from surrounding equipment. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Interference can be determined by turning the equipment off and on.

If this equipment does cause harmful interference to, or suffer from harmful interference of, surrounding equipment, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna or equipment.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced technician for help.

Electromagnetic immunity

The Coronis Fusion 10MP is intended for use in the electromagnetic environment specified below. The customer or the user of the Coronis Fusion 10MP should assure that it is used in such an environment.

Immunity test	IEC 60601 Test levels	Compliance level	Electromagnetic environment – guidance
Electrostatic discharge (ESD) IEC 61000-4-2	± 6kV contact ± 8kV air	± 6kV contact ± 8kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%
Electrical fast transient/burst IEC 61000-4-4	± 2kV for power supply lines ± 1kV for input/ output lines	± 2kV for power supply lines ± 1kV for input/ output lines	Mains power quality should be that of a typical commercial or hospital environment
Surge IEC61000-4-5	± 1 kV line(s) to line(s) ± 2 kV line(s) to earth	± 1 kV line(s) to line(s) ± 2 kV line(s) to earth	Mains power quality should be that of a typical commercial or hospital environment

Immunity test	**IEC 60601** **Test levels**	**Compliance level**	**Electromagnetic environment – guidance**
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	< 5% U_T [1](> 95% dip in U_T) for 0.5 cycle 40% U_T (60% dip in U_T) for 5 cycles 70% U_T (30% dip in U_T) for 25 cycles < 5% U_T (>95% dip in U_T) for 5s	< 5% U_T (> 95% dip in U_T) for 0.5 cycle 40% U_T (60% dip in U_T) for 5 cycles 70% U_T (30% dip in U_T) for 25 cycles < 5% U_T (>95% dip in U_T) for 5s	Mains power quality should by that of a typical commercial or hospital environment. If the user of the Coronis Fusion 10MP requires continued operation during power mains interruptions, it is recommended that the Coronis Fusion 10MP be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	Not applicable [2]	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
Conducted RF IEC 61000-4-6 Radiated RF IEC 61000-4-3	3 Vrms 150 kHz to 80 MHz 3 V/m 80 MHz to 2.5 GHz	3 V 3 V/m	Portable and mobile RF communications equipment should be used no closer to any part of the Coronis Fusion 10MP, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance **d = 1.2√P** **d = 1.2√P** 80 MHz to 800 MHz **d = 2.3√P** 800 MHz to 2.5 Ghz Where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in meters (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey,[3] should be less

1. is the a.c. mains voltage prior to application of the test level.
2. Coronis Fusion 10MP doesn't contain susceptible components to magnetic fields

Immunity test	IEC 60601 Test levels	Compliance level	Electromagnetic environment – guidance
			than the compliance level in each frequency range.[4] Interference may occur in the vicinity of equipment marked with symbol:

At 80 MHz and 800 MHz, the higher frequency range applies.

These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

Recommended separation distance

The Coronis Fusion 10MP is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer of the user of the Coronis Fusion 10MP can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the Coronis Fusion 10MP as recommended below, according to the maximum output power of the communications equipment.

Rated maximum output power of transmitter [5] W	Separation distance according to frequency of transmitter		
	150kHz to 80MHz $d=1.2\sqrt{P}$	80MHz to 800MHz $d=1.2\sqrt{P}$	800MHz to 2.5GHz $d=2.3\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

3. Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the Coronis Fusion 10MP is used exceeds the applicable RF compliance level above, the Coronis Fusion 10MP should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the Coronis Fusion 10MP.
4. Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.
5. For transmitters rated at a maximum output power not listed above, the recommended separation distance d in meters (m) can be estimated using the equation applicable to the frequency of the transmitter. Where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

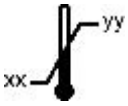
These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection form structures, object and people.

8.5 Explanation of symbols

Symbols on the device

On the device or power supply, you may find the following symbols (nonrestrictive list):

CE	Indicates compliance with the Directive 93/42/EEC as Class I device
CE 0120	Indicates compliance with the Directive 93/42/EEC as Class II device
FC	Indicates compliance with Part 15 of the FCC rules (Class A or Class B)
CLASSIFIED UL	Indicates the device is approved according to the UL regulations
CLASSIFIED C UL US	Indicates the device is approved according to the UL regulations for Canada and US
D	Indicates the device is approved according to the UL Demko regulations
CCC	Indicates the device is approved according to the CCC regulations
VCI	Indicates the device is approved according to the VCCI regulations
KC	Indicates the device is approved according to the KC regulations
	Indicates the device is approved according to the BSMI regulations
PS E	Indicates the device is approved according to the PSE regulations
	Indicates the USB connectors on the device

	Indicates the DisplayPort connectors on the device
	Indicates the manufacturing date
	Indicates the temperature limitations[6] for the device to safely operate within specs
	Indicates the device serial no.
	Warning: dangerous voltage
	Caution
	Consult the operating instructions
	Indicates this device must not be thrown in the trash but must be recycled, according to the European WEEE (Waste Electrical and Electronic Equipment) directive
	Indicates Direct Current (DC)
	Indicates Alternating Current (AC)
	Stand-by
	Equipotentiality

8.6 Legal disclaimer

Disclaimer notice

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6. Values for xx and yy can be found in the technical specifications paragraph.

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Patent information

This product is covered under the following intellectual property rights:

US Patent RE43,707

US Patent 7,038,186

US Patent 7,166,829

US Patent 6,950,098

European Patent 1 274 066.

8.7 Technical specifications

Overview

Product acronym	MDCG-10130
Screen technology	TFT AM LCD Dual Domain IPS
Active screen size (diagonal)	761 mm (29.6”)
Active screen size (H x V)	645 mm x 403 mm (25.4” x 15.9”)
Aspect ratio (H:V)	16:10
Resolution	native 10MP (4096 x 2560) configurable to 2 x 5 MP (2048 x 2560)
Pixel pitch	0.1575 mm
Color imaging	No
Gray imaging	Yes
Number of grayscales (LUT in/LUT out)	1024 gray levels (10/12)
Viewing angle (H, V)	170°
Uniform Luminance Technology (ULT)	Yes
Per Pixel Uniformity (PPU)	No
Ambient Light Compensation (ALC)	Yes
Backlight Output Stabilization (BLOS)	Yes
I-Guard	Yes
Maximum luminance	1250 cd/m² (panel typical)

DICOM calibrated luminance (ULT off)	500 cd/m² (panel typical)
Contrast ratio (typical) [7]	950:1 (panel typical)
Response time (Tr + Tf)	35 ms
Scanning frequency (H; V)	30-150 kHz; 15-80 Hz
Housing color	Black / Silver
Video input signals	DVI-D Dual Link (2x) / DisplayPort (2x)
Video inout terminals	NA
USB ports	1 upstream (endpoint), 3 downstream
USB standard	2.0
Power requirements (nominal)	100-240 V
Power consumption (nominal)	102 W
Power save mode	Yes
Power management	DVI-DMPM / DP-DMPM
Dot clock	280 MHz
OSD languages	English, German, French, Dutch, Spanish, Italian, Portuguese, Polish, Russian, Swedish, Chinese (simplified), Japanese, Korean, Arabic
Dimensions with stand (W x H x D)	Portrait: NA Landscape: 731 x 580~670 x 270 mm
Dimensions w/o stand (W x H x D)	Portrait: NA Landscape: 731 x 485 x 125 mm
Dimensions packaged (W x H x D)	869 x 764 x 400 mm
Net weight with stand	24.2 kg
Net weight w/o stand	17.7 kg
Net weight packaged with stand	33.1 kg
Net weight packaged w/o stand	N/A
Height adjustment range	96 mm
Tilt	-5° / +25°
Swivel	-30° / +30°
Pivot	N/A
Mounting standard	VESA (100 mm)
Screen protection	Protective, non-reflective glass cover
Recommended modalities	CT, MR, US, DR, CR, NM, Film
Certifications	CE0120 (MDD 93/42/EEC; A1:2007/47/EC class IIb product), CE - 2004/108/EC, IEC 60950-1:2005 + A1:2009 (2ND EDITION), IEC 60601-1 2ND ED:1988 + A1:1991 + A2:1995, UL 60601-1 1ST EDITION, CAN/CSA-C22.2 NO. 601.1-M90:2005, IEC 60601-1:2005, ANSI/AAMI ES 60601-1:2005 + C1:2009 + A2:2010, CAN/CSA C22.2 No. 60601-1-08:2008, DEMKO - EN 60601-1:2006, EN 60601-1-2:2007, CCC - GB9254-1-2011 + GB4943-2001 + GB17625.1-2012, KC, VCCI, FCC class B, ICES-001 Level B, FDA 510K, RoHS

7. In dark reading room conditions (0 lux)

Supplied accessories	User Guide
	Quick Installation Sheet
	Video cables (2 x DVI Dual Link + 2 x DisplayPort)
	Main cables (UK, European (CEBEC/KEMA), USA (UL/ CSA; adaptor plug NEMA 5-15P), Chinese (CCC))
	USB 2.0 cable
	External power supply
Optional accessories	None
QA software	MediCal QAWeb
Units per pallet	NA
Pallet dimensions (W x H)	NA
Warranty	5 years
Operating temperature	0°C to 40°C (15°C to 35°C within specs)
Storage temperature	-20°C to 60°C
Operating humidity	8% - 70% (non-condensing)
Storage humidity	5% - 95% (non-condensing)
Operation altitude	2000 m

8.8 Open source license information

Open source license information

Open source license usage

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